

ABSTRACT

Conventional stripline implementations of couplers in Multilayer Ceramic Integrated Circuit (MCIC) technology incur a cost disadvantage when compared to an equivalent microstrip implementation. This is primarily due to the increased substrate thickness needed to achieve the required performance. Conventional stripline couplers significantly limit our ability to optimise for smaller substrate thickness and therefore overall cost. However, stripline couplers are needed for stacked integration scenarios and as building blocks for complex active and passive RF circuits in MCICs. A method of implementation that overcomes this practical disadvantages is therefore highly desirable. To this end, the present invention presents a novel coupling device structure that enable RF designers to use the stripline coupler configuration, by achieving required levels of performance with much reduced substrate thickness. The invention outlines a structured design procedure and presents simulation results confirming the validity of the technique. In particular, to achieve this, the present invention proposes a coupling device, comprising a substrate 1, a first conductive layer 2 covering a first surface of said substrate 1, at least two electromagnetically coupled lines 3a, 3b being provided opposite to said first surface and being covered by at least one cover layer 4, 5, wherein at least one short-circuit stub Stub A, Stub B is connected between at least one of said electromagnetically coupled lines and said first conductive layer.

- Fig. 6 -